

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >	
Title	Proposed IEEE 802.16 content in NIST Wireless Standards Characterization Matrix for Smart Grid Applications	
Date Submitted	2010-01-19	
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Re:		
Abstract		
Purpose	The IEEE 802.16 Working Group should review the proposed characteristics matrix prior to its submittal on 12 January. Review should be assigned to the GRIDMAN Study Group.	
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Proposed IEEE 802.16 content in NIST Wireless Standards Characterization Matrix for Smart Grid Applications

Roger B. Marks

10 January 2010

1. Introduction

NIST, in conjunction with the Smart Grid Interoperability Standards Roadmap activity, has been developing a set of Priority Action Plans (PAPs). PAP#2 is entitled *Wireless Communications for the Smart Grid*.

IEEE 802 has taken responsibility for several PAP#2 tasks, including Task #4: “Create an attribute list and performance metrics for wireless standards.”

2. Request to submit PAP#2 Content

The following message was submitted to the relevant NIST mailing list on 3 November 2009, with the referenced “Wireless Functionality and Characteristics Matrix for the Identification of Smart Grid Domain Application” attached as a spreadsheet:

Dear PAP#2 participants,

Pursuant to last week’s teleconference the matrix has been updated and a formal request prepared.

Submitted by: Bruce Kraemer

Chair 802.11

On behalf of IEEE 802

Request for Completion of the

Wireless Standards Characterization Matrix for Smart Grid Applications

Background

NIST has established a number of Priority Action Plans (PAPs) to guide the work of identifying and developing standards for the Smart Grid. PAP #2 addresses Wireless Communications for support of the Smart Grid.

The goal of PAP #2 is to investigate the capabilities, strengths, weaknesses, and constraints of existing and emerging standards-based wireless communications technologies. The project approach is to work with the appropriate standard development organizations (SDOs) to determine the characteristics of each technology impacting Smart Grid application areas and communications. Results can then be used to assess the appropriateness of particular standards-based wireless communications technologies for meeting the requirements of Smart Grid applications.

During the SDO Workshop, PAP #2 was broken into a number of tasks. Task 4 called for the creation of an attribute list and performance metrics for wireless standards. Task 5 calls for the collection of an inventory of wireless technologies, based on the parameters and metrics developed in Task 4, to be filled by each SDO. The attached matrix is the result of Task 4 and is being transmitted for completion to each SDO for their respective wireless technologies.

The purpose of the row entries in the matrix is to allow high level assessment of the suitability of particular wireless standard based technologies for use in various applications and domains of the Smart Grid (e.g. Advanced Metering, Supervisory Control And Data Acquisition (SCADA), Work Management, etc). The rows do not attempt to completely capture all characteristics and parameters of a technology, but only those that are deemed to be relevant to assessing the relevance of a technology to a particular Smart Grid use case.

Instructions for Completion of Matrix

Each SDO is requested to fill in a column. Excel is fairly flexible in accepting large text answers, but complex answers may require the use of attachments that can be referenced in the matrix.

Since many of the parameters in the matrix have dependencies on each other, e.g. data throughput, range and mobility, the matrix should be filled out by providing a consistent set of parameter values, rather than best case values for each parameter. By a "consistent set" we mean that one picks some "operating point" for the technology and provides parameter values (for those that depend on operating point) that are consistent. For example, maximum data rate will not be delivered at maximum range. A column entry is expected to provide values for the error rate, range, throughput, mobility and other interrelated parameters consistent with the chosen operating point. It would be appropriate to complete more than one column for an individual technology to display the results for more than one operating point.

Most of the terms used in the matrix have standard “text book” definitions. Where further explanation is required, an Explanatory Note number will be shown on the matrix page and an explanation captured on the Explanatory Note worksheet.

Review of Matrix and Completion Process

The exercise of filling in the matrix could be viewed as a trial by fire and may uncover problems or ambiguities that require discussion beyond what is practical via the email reflector. Also, if you have any comments on whether any additional characteristics would be useful for the purpose of Task 4 we will be glad to consider these.

In anticipation of the need for matrix clarifications or, perhaps, revisions, we have scheduled a conference call for:
1pm US eastern time on Wednesday November 11. Duration 1 hour. Dial in number: 877-627-6785 or (706) 643-7105 code: 00692

Schedule

In light of the global urgency of the Smart Grid deployment effort, we would appreciate it if you would complete and return the attached matrix by December 6, 2009.

We thank you for your prompt response.

Please send your complete response to: wlessaction@nist.gov

3. Request to submit PAP#2 Content

At the December 6 deadline, Evgeny Yakhnich submitted a draft spreadsheet proposing characteristics of “IEEE 802.16e/WiMAX.” NIST notified the IEEE 802.16 Chair and requested coordination.

During subsequent discussions, NIST requested the input relevant to IEEE 802.16 by 12 January 2010, in advance of a teleconference on 13 January.

4. Proposed content relevant to IEEE 802.16

A proposed matrix is attached to this document.



5. Proposal

The IEEE 802.16 Working Group should request careful and thorough review of the proposed matrix by the GRIDMAN Study Group, requesting that the Study Group agree to a version by 12 January.